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ALEX MARTENS

PAGE 01



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**U.S. Patent & Trademark Office  
Patent Examining Operations**

Re. Application No. 10772535 10772535  
Filed 2/6/04  
Examiner Frantz F. Jules  
Art Unit 3617  
Conf. No. 5402

Commissioner of Patents  
PO Box 1450  
Alexandria, VA 22313-1450  
Attn: Office of Petitions

In response to a Letter of Abandonment, Martin Lukacher, Esq. and I have submitted a Petition to Revive the subject application. We are convinced that our responses to the Examiner's comments have either been lost by the Post Office or misfiled. For several weeks we tried to contact the above Examiner and were not able to because he was not currently working at the U.S. PTO facilities... After leaving several messages in the Examiner's mail box, I received a telephone call from the Examiner, who advised me to contact the Office of Petitions. I have and received a prerecorded response that instructions would be mailed in about two weeks.

Considering the length of elapsed time since our first request to the Examiner to revive the application, we are hoping that you would be able to expeditiously consider this matter and revive the application. I am enclosing the copies of the pertinent documents to support our request.

Respectfully,

*Alexander E. Martens*  
Alexander E. Martens

*Martin Lukacher*  
Martin Lukacher (RN 17788)

Enclosures: A copy of Response of 6/25/05  
A copy of the Notice of Abandonment  
A copy of the postcard confirming delivery to the PTO  
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## Memo

To: M. LuKacher  
CC: E. Matzan  
From: Alex Martens  
Subject: PTO action re Matzan # 3  
Date: 24 July 2005

Marty,

Received Gene's comments and have also reviewed the cited prior art and examiner's comments.

**2,160,540 H.C. Drake.** Claims improvements to the Sperry Rail Flaw Detector. Uses Eddy current fluctuations to detect defects in rails only, not in wheels. Uses a paint dispenser to mark the defect location on the rail and on a moving chart in the car used to inspect the rails.

Matzan # 3 claims a system that inspects the wheels using mechanical/acoustic vibrations generated in the rails when car wheels roll over these rails. The vibrations are detected by sensors fastened to acoustically isolated segments of the rails. The resulting electrical signals representing the vibrations are analysed in real time using a Fast Fourier Transform to separate the harmonics and compare the pattern of frequencies distribution to the stored reference patterns. Detects a variety of rail and wheel defects. Uses a self-generating power supply.

The common points are the detection of rail defects (though not the method) and spraying paint on the rail to identify the location of the defect.

**4,702,104 Karl Hallberg.** This patent comes close to Matzan # 3, however, there are, we believe, significant differences:

1. Matzan specifies acoustically isolated rail segments, the purpose of which to make sure that any signals generated are those from this particular train and not from other trains further back or ahead of the subject trains, but still capable of generating significant signals that are transmitted through the rails. Hence, the signal-to-noise ratio would be better with Matzan's approach.
2. Hallberg uses filters to separate low frequency signals from high frequency signals, a rather coarse method to accomplish the analysis. Matzan employ an FFT module to obtain a detailed frequency distribution that permits an accurate indication of the type of the defect and its severity.

3. Hallberg uses rail deformation as an indicator of a defect in a wheel. Matzan claims detection of mechanical/acoustical vibration frequency spectrum differences as indicators.
4. Matzan proposes to use a self-generating power source to provide current to his system.

**4,936,529 P.I Maine. Significant differences:**

1. The cited invention is designed to use microwaves to detect excessive wear and other shape defects of wheel flanges and rims. Matzan # 3 detects wheel defects, loose couplings and problems with bearing and brakes.
2. Matzan # 3 uses the analysis of frequency distribution of mechanical/acoustical vibrations as indicators of such defects, a much more comprehensive inspection.

**6,523,411 Z. Mian. Differences:**

1. It appears that Mian claims detection of wheel cracks. Matzan claims detection of wheel deformation, as well as bearing and brake defects.
2. Mian proposes to use RF in the ultrasonic range to pass the electromagnetic radiation through the wheel and then analyze the signals received after the passage of these signals through wheel to detect cracks. Matzan uses mechanical/acoustic vibrations generated by wheels traversing the acoustically isolated segments of rails, to detect wheel and other defects.
3. It appears that, compared to Matzan # 3, Mian's system is mechanically very complex, thus expensive and prone to failures.

**6,138,515 Jean-Pierre Moufle and Philippe Piquemal. Differences.**

1. Moufle is teaching the use of ultrasound to detect defects in a moving cast metal strip. Matzan is using sounds and vibrations in audio range of frequencies to detect defects in railroad wheels, and associated suspensions and breaks.
2. Moufle has ultrasonic sensors situated in flexible moving wheel. Matzan has sound/vibration sensors attached to acoustically isolated sections of rails.
3. Moufle requires coupling fluid to be spread on the metal strip to facilitate ultrasound coupling between the tracking wheel and the strip. Matzan does not use any fluid.
4. Moufle's objective is to detect defects in a continuous meatal strip; Matzan is sensing physical deformations in wheels, suspensions and breaks with sensors attached to acoustically isolated sections of rails.

**GB 2 233 761 Joseph E. Bambara. Differences.**

1. In Bambara's system sound and vibrations from many wheels propagate along the rails and tend interfere/obscure any acoustical/vibration signals emanating from a specific wheel being inspected, this may be a source of errors. Matzan acoustically isolates the rail sections that have vibration sensors attached to them, thus minimizing the interfering sounds/vibrations from other wheels.
2. Bambara's system uses standoff microphones and is therefore, despite adaptive filters, prone to interference from a variety environmental sounds, e.g., rain, hail, sounds of trucks passing nearby, agricultural equipment, etc. Matzan's system uses contact sensors that are significantly less likely to be picking up such environmental sounds.
3. Bambara's system is designed to operate in ultrasonic range more sensitive to minor defects in bearings. Matzan operates in audio range responsive to various deformations in the wheels, suspensions, and bearings.
4. Since Matzan claims sensors permanently and intimately attached to the rail sections, such sensors are much less affected by adverse weather conditions than Bambara's standoff microphones located in acoustic horns.
5. It appears that the microphones in Bambara's system require careful placement and a trial-and-error position adjustment. No such requirement for Matzan's system.



In the U.S. Patent and Trademark Office  
Patent Examining Operation.

Applicant: Eugene Matzan

Appl. No. 10/772,535

Filed: 02/06/2004

For: Systems for Detection of Defects in Railroad Car Wheels

Examiner: Franz F. Jules

Art Unit: 3617

Confirmation No. 5402

To the Commissioner of Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Response to Action dated 06/22/2005

Please amend the claims as indicated on the attached listing entitled "Amended Claims".

Remarks

The rejection of claims 15 and 16 is respectfully traversed. The description and drawings fully support claims 15 and 16 where signals from the sensors are "Signal In" to the power supply as per Fig. 1 and the power supply in Fig. 4 all are fully described in the second paragraph on page 6 of the specifications.

The 35 USC 102 rejection of claims 1 and 4 is moot in that claim 1 is canceled and claim 4 as amended is dependent on claim 2,

The rejection under 35 USC 103 on Maine 4,936,529 in view of Mian 6,523,411 and Hallberg 4,702,104 is respectfully submitted to be overcome by the amendments to the claims.

Both Maine and Mian are irrelevant to the claimed invention since they relate to microwave/radio frequency detection and provide no guidance to the skilled in the art to the use of acoustical/sound vibration detectors. There is no impetus for combining these patents with Hallberg since they use different detection modalities than Hallberg uses. Thus, their combination would not suggest itself to one skilled in the art.

Applicant's invention provides significant patentable improvement over Hallberg in the following respects:

- a) Teaching the use of acoustically isolated rail sections
- b) Limiting the length of the sections to less than that the distance covered by half rotation of the railroad wheel

- c) Use of acoustical signals over the full range, not just the range above 100 Hz.
  - d) Using frequency domain conversion rather than a complex digital processing technique; applicant specifically uses an FFT device (claim 5) to get the spectrum
- a) and b) improves signal processing and reduces interference (see last paragraph on page 1).
  - b) enables earlier detection of wheel defects – rather than relying on harmonic, which manifests defects only after they become catastrophic. Early detection enables taking the car out of service while it can still roll to the repair yard. A test can be completed before a catastrophe, which can shut down the rail line.

Since a system having the forgoing improvements is not .....by Hallberg, the invention as claimed in the amended claims, let alone .....of the dependent claims, would not have been obvious to anyone skilled in the art, the allowance of applicant's claims is believed to be in order and is respectfully solicited.

Respectfully submitted,

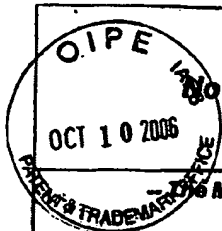
6 September 2005

\_\_\_\_\_  
M. LuKacher, RN 17788  
Upstate CTC  
63 Winding Creek Lane  
Rochester, NY 14625

Certificate of Mailing

This response was mailed to the above address by 1<sup>st</sup> class US mail on 6 September 2005 by the undersigned.

\_\_\_\_\_  
Alexander E. Martens



# Notice of Abandonment

Application No.

10/772,535

Examiner

Frantz F. Jules

Applicant(s)

MATZAN, EUGENE

Art Unit

3617

The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 22 June 2005.
  - (a) ☐ A reply was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply (including a total extension of time of \_\_\_\_\_ month(s)) which expired on \_\_\_\_\_.
  - (b) ☐ A proposed reply was received on \_\_\_\_\_, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
  - (c) ☐ A reply was received on \_\_\_\_\_ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
  - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
  - (a) ☐ The issue fee and publication fee, if applicable, was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
  - (b) ☐ The submitted fee of \$\_\_\_\_\_ is insufficient. A balance of \$\_\_\_\_\_ is due.  
The issue fee required by 37 CFR 1.18 is \$\_\_\_\_\_. The publication fee, if required by 37 CFR 1.18(d), is \$\_\_\_\_\_.
  - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
  - (a) ☐ Proposed corrected drawings were received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply.
  - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on \_\_\_\_\_ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

FRANTZ F. JULES  
PRIMARY EXAMINER

Frantz F. Jules  
Primary Examiner  
Art Unit: 3617

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 15-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In the instant case the recitation of means responsive to outputs from the sensors for generating and storing electrical energy or the output of the generating electrical energy have not been described in the specification with enough detail to allow an ordinarily skilled artisan to duplicate the invention.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by  
Maine (US 4,936,529).



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Unbehaun discloses a system for detection of railroad wheel defects comprising remote rail defect monitors (32) installed in rails over which the wheels travel, and means (23) obtaining wheel identification and defect information from the monitors.

said central monitoring station has means which receive the information from said remote rail defect monitors and generates reports and warnings related to the condition of said wheels as the controller activates an alarm at a remote location when a voltage is detected.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-3, 7-12, 14, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maine in view of Main et al (US 6,523,411) and Hallberg (US 4,702,104).

Claims 2-3, 7-9, 14, 17-19

Maine teaches all the limitations of claims 2-3, 7-9, 14, 17-19 except for a system comprising a plurality of acoustical vibration sensors for each rail including means to amplify electrical signals generated by said sensors and comparing the signals to stored data. The general concept of providing an acoustical vibration sensor for each of the rails is well known in the art as illustrated by Mian et al which discloses the teaching of a

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plurality of acoustical sensors (16, 38) in a system for detecting wheel defect. Also, the general concept of providing means to amplify electrical signals generated by sensors and comparing the signals to stored data is well known in the art as illustrated by Hallberg which discloses the teaching of means (7) to amplify electrical signals generated by sensors and comparing the signals to stored data, see col 2, lines 3-52, col. 4, lines 29-32. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maine to include the use of an acoustical vibration sensor for each of the rails in his advantageous system for detecting wheel defect in order to reduce or eliminate the number of false positives noise in the system thereby improving the longevity, accuracy, reliability, quickness, cost-effectiveness in the system as discloses in col 1, lines 56-59. Also, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maine to include the use of means to amplify electrical signals generated by the sensors and comparing the signals to stored data in his advantageous system in order to reliably detect the presence of defective wheels in a passive railroad vehicle, see col 1, lines 40-41.

#### Claims 10-13

Regarding using strain gauge sensors, or pressure, or magnetic sensors or a counter for counting the number of wheels as recited in claims 10-13, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maine to include the use of strain gauge sensors, or pressure, or magnetic sensors or a counter for counting the number of wheels in his advantageous system, as sensor selection is a common and everyday occurrence throughout the system for detection of railroad wheel

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design art and the specific use of strain gauge sensors, or pressure, or magnetic sensors or a counter for counting the number of wheels would have been an obvious matter of design preference depending upon such factors as the weight of the object to be carried by the rails and sensor, the yield strength of the side rail and sensor; the ordinarily skilled artisan choosing the best stress profile corresponding to a particular loading imposed on the rails and sensor which would most optimize the cost and performance of the device for a particular application at hand, based upon the above noted common design criteria.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moufle et al and Bambara are cited to show related apparatus for the detection of defects using accoustic signals.

Drake is cited to show related method of detecting flaw in a wheel and identify a wheel.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz F. Jules whose telephone number is (703) 272-6681. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph S. Morano can be reached on (703) 272-6684. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3617

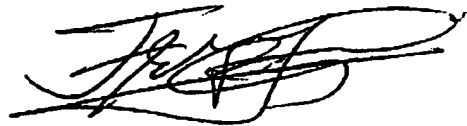
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frantz F. Jules  
Primary Examiner  
Art Unit 3617

FFJ

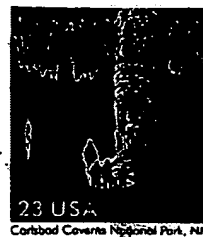
June 17, 2005

**FRANTZ F. JULES**  
**PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to be 'Frantz F. Jules', written over a horizontal line.



ALEXANDER E. MARTEUS  
63 WINDING CREEK LANE  
ROCHESTER, NY 14625



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